September 1982 NSRP 0009

SHIP PRODUCTION COMMITTEE
FACILITIES AND ENVIRONMENTAL EFFECTS
SURFACE PREPARATION AND COATINGS
DESIGN/PRODUCTION INTEGRATION
HUMAN RESOURCE INNOVATION
MARINE INDUSTRY STANDARDS
WELDING
INDUSTRIAL ENGINEERING
EDUCATION AND TRAINING

THE NATIONAL SHIPBUILDING RESEARCH PROGRAM

Proceedings of the IREAPS Technical Symposium

Paper No. 2: PARTGEN: An Advanced Interactive Method for Highly Automated Parts Generation Based on the Design Model Data

U.S. DEPARTMENT OF THE NAVY CARDEROCK DIVISION, NAVAL SURFACE WARFARE CENTER

maintaining the data needed, and c including suggestions for reducing	ompleting and reviewing the collect this burden, to Washington Headqu uld be aware that notwithstanding an	o average 1 hour per response, inclu- ion of information. Send comments arters Services, Directorate for Infor ay other provision of law, no person	regarding this burden estimate mation Operations and Reports	or any other aspect of the property of the contract of the con	nis collection of information, Highway, Suite 1204, Arlington		
1. REPORT DATE SEP 1982							
4. TITLE AND SUBTITLE The National Shiple	wilding Degearch D	rogram Proceeding	a of the	5a. CONTRACT	NUMBER		
IREAPS Technical	5b. GRANT NUMBER						
Design Model Data	l for Highly Automa	5c. PROGRAM ELEMENT NUMBER					
6. AUTHOR(S)			5d. PROJECT NUMBER				
		5e. TASK NUMBER					
			5f. WORK UNIT NUMBER				
Naval Surface War		odress(es) de 2230 - Design Int ur Blvd Bethesda, N		8. PERFORMING REPORT NUMB	G ORGANIZATION ER		
9. SPONSORING/MONITO	RING AGENCY NAME(S) A		10. SPONSOR/MONITOR'S ACRONYM(S)				
			11. SPONSOR/MONITOR'S REPORT NUMBER(S)				
12. DISTRIBUTION/AVAIL Approved for publ	ABILITY STATEMENT ic release, distributi	on unlimited					
13. SUPPLEMENTARY NO	OTES						
14. ABSTRACT							
15. SUBJECT TERMS							
16. SECURITY CLASSIFIC	ATION OF:	17. LIMITATION OF	18. NUMBER OF PAGES	19a. NAME OF			
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified	ABSTRACT SAR	24	RESPONSIBLE PERSON		

Report Documentation Page

Form Approved OMB No. 0704-0188

DISCLAIMER

These reports were prepared as an account of government-sponsored work. Neither the United States, nor the United States Navy, nor any person acting on behalf of the United States Navy (A) makes any warranty or representation, expressed or implied, with respect to the accuracy, completeness or usefulness of the information contained in this report/manual, or that the use of any information, apparatus, method, or process disclosed in this report may not infringe privately owned rights; or (B) assumes any liabilities with respect to the use of or for damages resulting from the use of any information, apparatus, method, or process disclosed in the report. As used in the above, "Persons acting on behalf of the United States Navy" includes any employee, contractor, or subcontractor to the contractor of the United States Navy to the extent that such employee, contractor, or subcontractor to the contractor prepares, handles, or distributes, or provides access to any information pursuant to his employment or contract or subcontract to the contractor with the United States Navy. ANY POSSIBLE IMPLIED WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR PURPOSE ARE SPECIFICALLY DISCLAIMED.

Proceedings IREAPS Technical Symposium September 14-16-1982 San Diego, California

VOLUME I



INSTITUTE FOR RESEARCH AND ENGINEERING FOR AUTOMATION AND PRODUCTIVITY IN SHIPBUILDING

PARTGEN: AN ADVANCED INTERACTIVE METHOD FOR HIGHLY AUTOMATED PARTS GENERATION BASED ON THE DESIGN MODEL DATA

Frans von Cuilenborg Development Project Leader Shipping Research Services Oslo, Norway

Mr. Cuilenborg has 19 years of shipbuilding experience, 14 of those years with Shipping Research Services in Norway.

ABSTRACT

This is a brief introduction to the present status of the AUTOMODL development effort (AUTOKON) and an indepth description of the first module of an AUTOMODL named PARTGEN. PARTGEN works on a topological model of the ship and is stored in the database. PARTGEN uses extensively interactive graphics and will virtually eliminate 90 percent of what today is called In addition to performing part genpartcoding in the production phase. eration, PARTGEN also has other valuable functions. It can do fairing of lines, interactively, to establish a preliminary hull form for building up the design model in the database, It has a report generator whereby the user can make extensive reports from the database and make user formu-PARTGEN also includes extensive automatic lated layouts on the reports. This is a benefit of having parts updating procedures due to changes. for production stored as topological data instead of as geometry.

PARTGEN

The first module in AUTOMODL

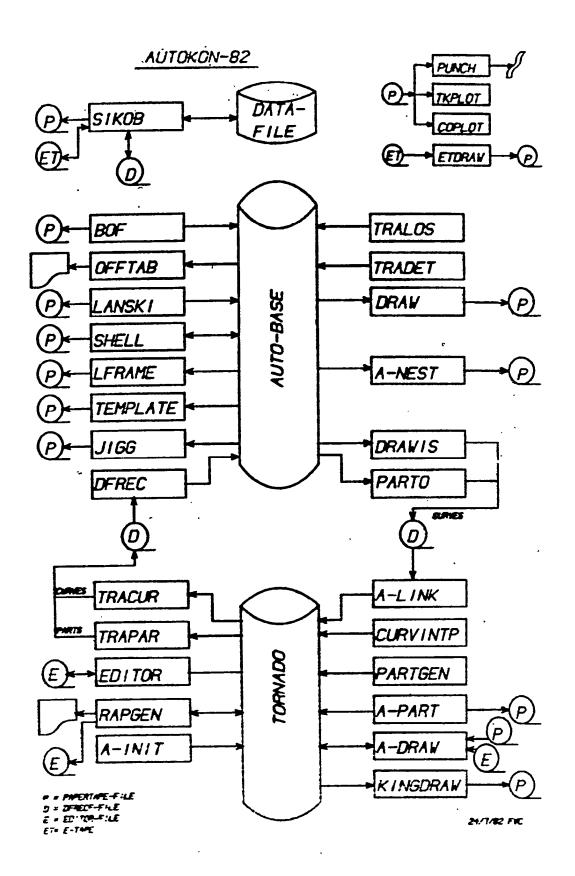
Introduction

PARTGEN is the first available module in AUTOMODL. It is using the new Database system TORNADO which will be the common database for AUTOMODL. PARTGEN is an interactive tool to define steel structures in plane surfaces. The PARTGEN module can be used in three different ways.

- O PARTGEN can receive curves from other programs. These curves will then form various surfaces, and these surfaces will be in various stages of completion depending on the detailing-level done with other programs. These curves may include boundary curves for the surfaces (edges), intersection curves, trace curves (stiffener traces), seam curves and curves with cutouts.
- O PARTGEN can also build up the structure within a surface using available commands and macros.
- PARTGEN can also be used as a combination of the two above. This will typically be the case when the structure is only partially finished before PARTGEN is used.

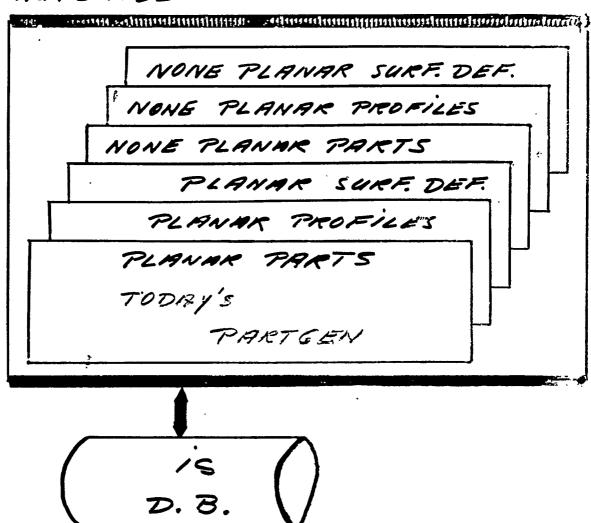
The regular output from PARTGEN is production parts ready for nesting. However, output or information is also stored in the database, and various reports can be generated as regular output.

Output from PARTGEN can also be used by AUTODRAW for, generation of drawings.



PARTGEN IN AUTONODL

AUTONODL



Systemphilosophy

In PARTGEN there are several basic consepts that need some explanation.

- O Product. A product in PARTGEN is the entire sturcture the user wants to work with. It can be an entire ship, a half ship or a group of units. A product is normally given a name like YN 228AB. A project identification (Project number) is also linked to the product.
- O Surface. A product is built up of various surfaces. A surface is defined as a U, V, W-coordinate system, related to the global X, Y, Z system.

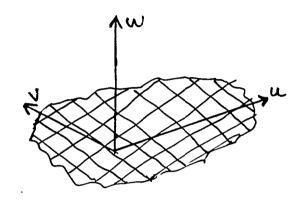
 The surfaces in PARTGEN are given names by the user. The naming-conventions made so far should be familiar. PARTGEN is using names like: SHELL, DECK, PLTF, STRINGER, GIRDER, TFRAME etc.
- O Curves. A surface is built up by various curves, and a particular curve is always within a surface. These curves may be generated by PARTGEN itself, or they may be comming from other programs like BOF, TRALOS, TRADET etc.

 There are several types of curves, and each curve has a name (type) and a numeric identification number.

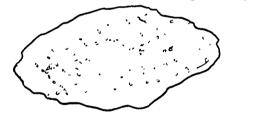
 The type of a curve also indicates what kind of curve it is. We have HOLE-CURVE (holes), SEAM-CURVES (seams, butts), TRACE-CURVES (traces of stiffeners), INTERSECTION-CURVES (curves formed by two surfaces intersecting each other) etc.

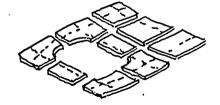
The three above mentioned consepts form the basis for partgeneration with PARTGEN. Except for the Product, the user is free to manipulate surfaces and curves at any time in the PARTGEN process, thus being able to take care of last minute changes.

SURFACE (PLANE SURF.)



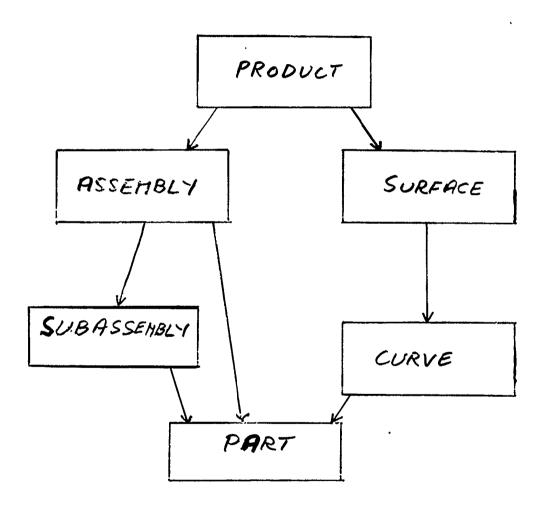
WRVES IN A SURFACE



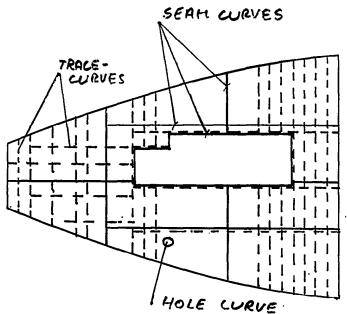


PARTS

28



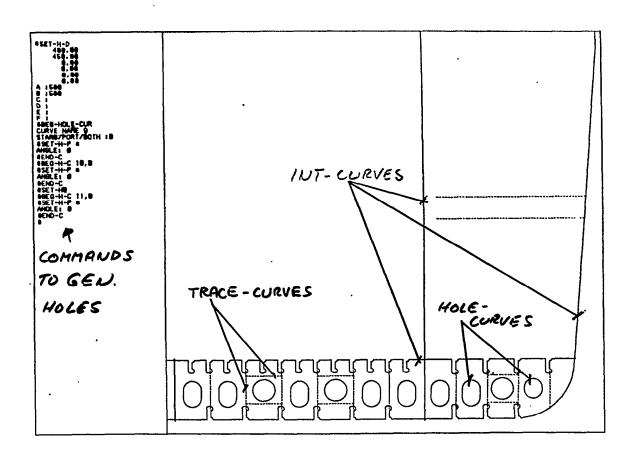
CURVES IN A SURFACE



ALL CURVES COMMING FROM TRALOS/TRADET/ISDRAW

ALL CURVES CAN BE HODIFIED OR DELETED BY PARGEN

NEW CURVES OF ANY TYPE CAN BE ADDED BY PARGEN



- O Assembly. The assembly consept is used when PARTGEN is used for generation of production parts. The user can establish a tree structure with assemblies and subassemblies, where the assembly normally will be a block or unit. The assemblies have identification numbers as also the subassemblies have. An assembly or subassembly is built up by parts for production. A part can not be defined without belonging to an assembly.
- O Parts. Parts are defined in PARTGEN as belonging to an assembly or subassembly. One particular part will recide in a surface and contain various curves, also belonging to a surface.

PARTGEN is not a part splitting programs. It does not even have any part splitting capability. PARTGEN is using intersection points between curves to generate a part. The part is built up by topological points formed by the intersection points between the curves. This consept makes automatic updating of parts based on modifications to curves easy.

How PARTGEN works

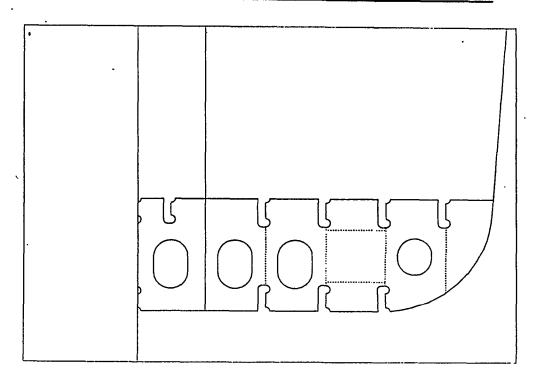
Normally, the PARTGEN process will start up after, or at the end of building up the model of the structure in the dat abase. The building up of the model in the database is today done by the programs BOF, LANSKI, TRALOS and TRADED. These are traditional batch oriented programs. However. they are not run as batch programs today. All the traditional waiting time in a batch environment has been eliminated by running the programs on-line on a minicomputer from a graphic screen (terminal) like Tektronix or LSI-ADM 32. Quick verification and response to changes are key words in this context. In the near future, the complete model build up in the database will be done by other AUTOMODL Today, parts of the model can also be built up modules. by PARTGEN.

The initial bulk of data belonging to the model is transferred to the PARTGEN database by the programs DRAWIS and AUTOLINK.

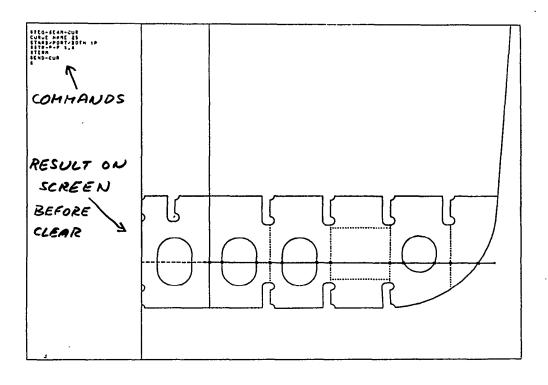
From the PARTGEN database the user will bring up a particular surface or group of surfaces on the screen.

This can be the whole surface or only a window of it. Normally a window is used for better clearity. If-the surface is complete the partgeneration process starts imidi at el y. However, if additional seams or holes have to be generated, this is now done with PARTGEN directly and included in the surface and stored in the database. The actual partgenaration is done by using the crosshair to point at intersection points of curves that form the However, before the actual boundary of a particular part. partgeneration takes place, an assembly must be started by the command BEG-ASS name. Every curve that is inside the part will be included. This includes holes and traces of By the crosshair pointing, the topology of the stiffeners. part is generated.

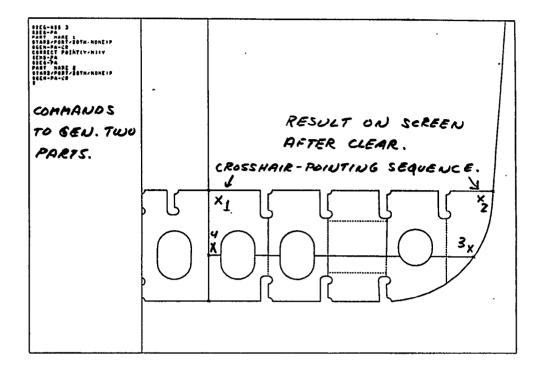
ZOOMING OF DETAIL FOR PARTEEN



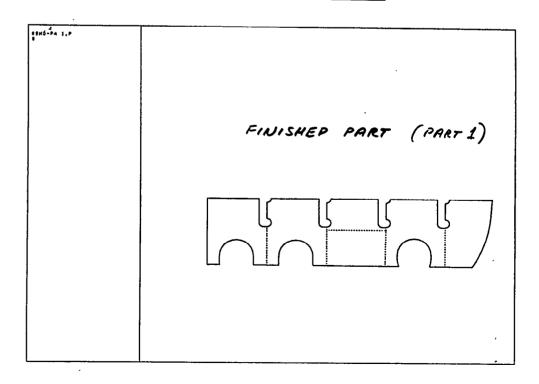
SEAM-CURVE GENERATION



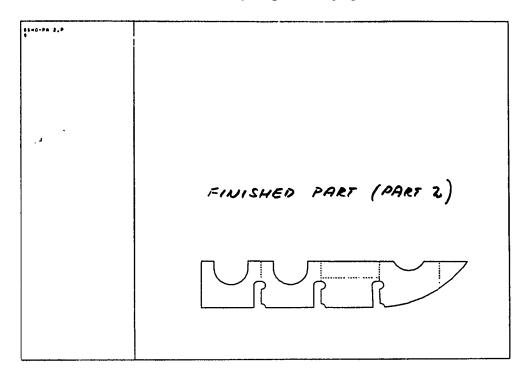
PART GENERATION



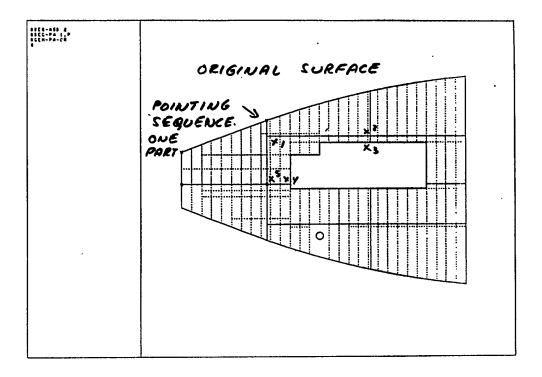
PART GENERATION



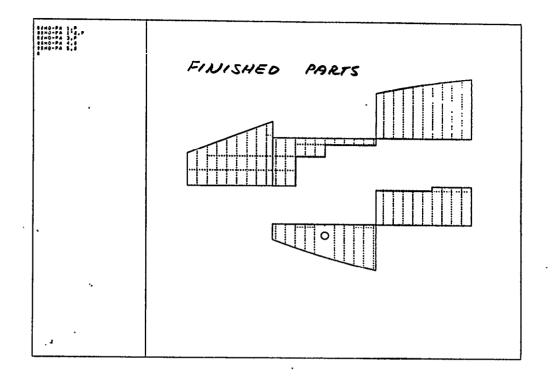
PART GENERATION

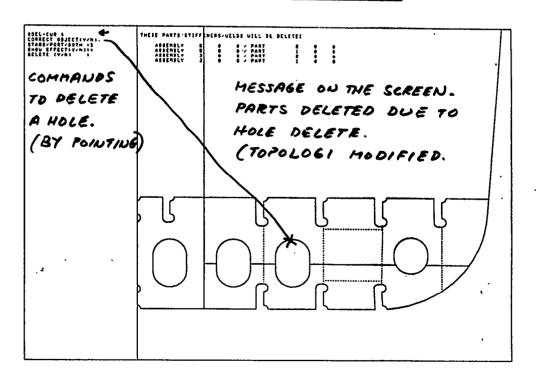


PART GENERATION

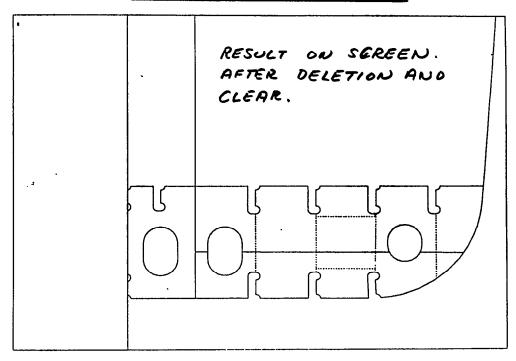


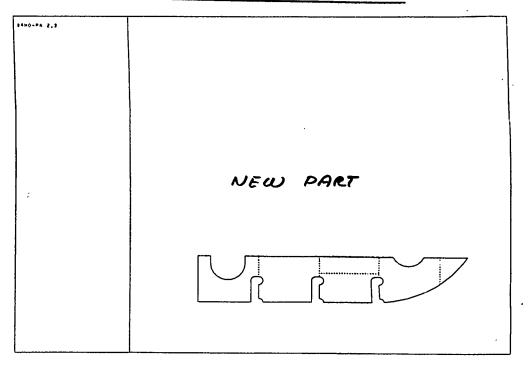
PART GENERATION



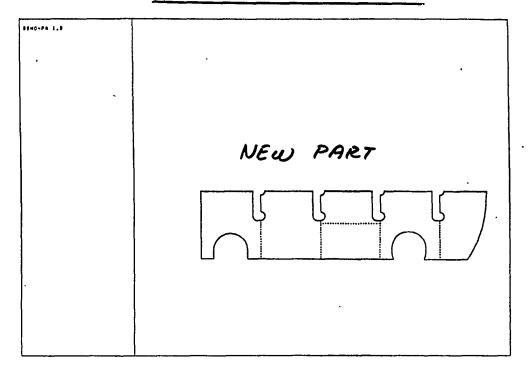


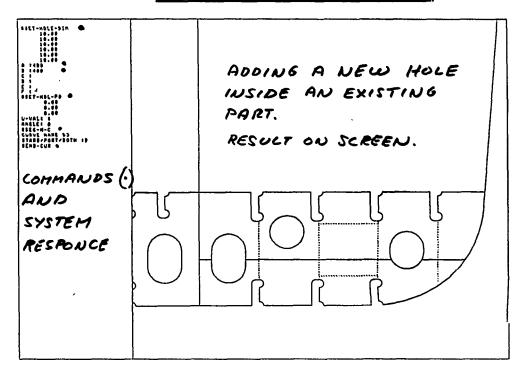
PART MODIFICATION

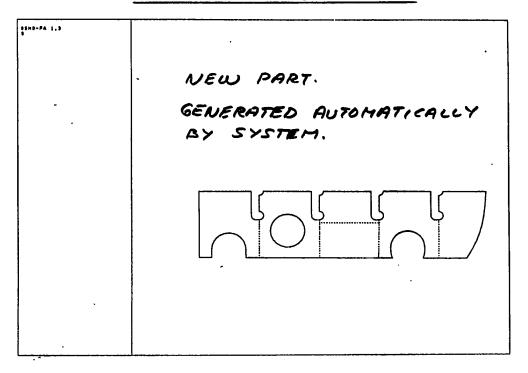




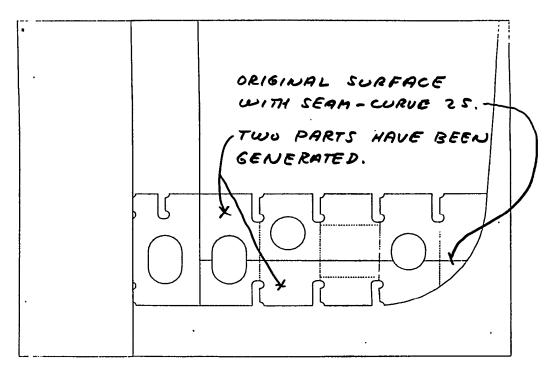
PART MODIFICATION



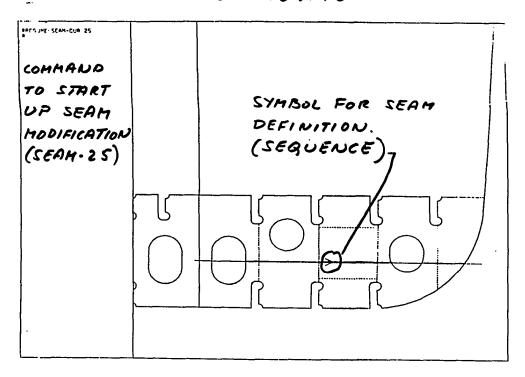




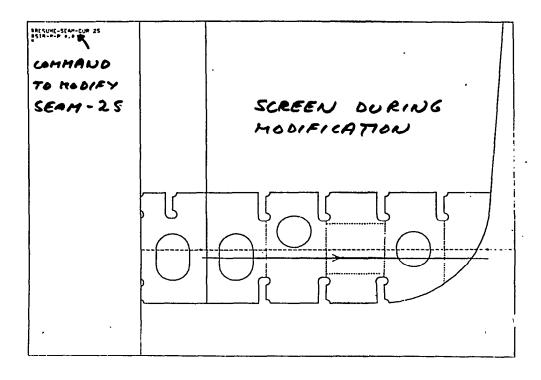
PART MODIFICATION



PART MODIFICATION



PART HODIFICATION

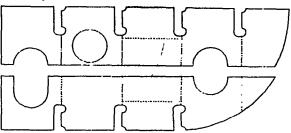


PART GENERATION

STARS/PORT/BOTH/HONELS BSHO-PA 2

8970P --DATAMASE 13 MON COPIED, --STOP BY USER CP 1382 BLOCKS LI 112 BLOCKS -PA 1824 BLOCKS sace STOP OK,

THE TWO NEW PARTS
GENERATED AUTOMATICALLY
BY SYSTEM.



REPORT FROM PARTGEN

DO YOU WANT TO CONTINUE (OR SKIP) (Y/N/SK) 1

PART 11 0 0 15.00 5.58 651.42 11958 -2677 PART 12 0 0 15.00 10.29 1211.69 18977 -8204 PART 18 0 0 15.00 12.48 1464.50 16618 -8769 PART 14 0 0 15.00 5.58 651.42 11958 2877 PART 15 0 0 15.00 10.29 1211.69 18977 8204	ASSEMBLY - 01						MAI - 15- 1502			
PART 11 0 0 1 15.00 5.58 651.42 (1998 -2877 -8204	MARTE MANER		Turki me							
MART 12 0 0 0 15.00 10.29 1211.69 1897T -8209 MART 18 0 0 15.00 12.48 1464.50 16618 -6719 MART 18 0 0 15.00 15.55 651.92 11998 287T MART 15 0 0 15.00 10.29 1211.69 1897T 8201 MART 15 0 0 15.00 10.29 1211.69 1897T 8201 MART 90 1 0 9.50 12.48 1464.50 16618 8719 MART 90 1 0 9.50 12.61 340.85 14279 -1479 MART 90 2 0 3.50 12.61 340.85 14279 -1479 MART 91 0 9.00 0.76 55.76 15142 8240 MART 91 2 0 9.00 0.76 55.76 15142 8240 MART 91 5 0 9.00 0.76 55.76 15142 8240 MART 91 5 0 9.00 0.76 54.14 15766 8240 MART 91 5 0 9.00 0.81 57.60 17014 8240 MART 91 1 0 8.00 0.71 44.76 14518 -8249 MART 91 1 0 8.00 0.71 44.76 14518 -8249 MART 91 2 1 8.00 0.71 44.76 15142 -8249 MART 91 6 0 9.50 1.08 80.65 15765 -8249 MART 91 7 0 9.50 1.11 82.52 16588 -8249 MART 91 8 0 9.50 0.76 57.50 17014 4420 MART 91 9 9.50 0.76 57.50 15765 -8249 MART 91 0 9.50 0.76 57.50 15765 -8249 MART 91 0 9.50 1.12 84.15 17012 -8249 MART 91 0 9.50 0.76 57.50 15765 -8249 MART 91 1 0 9.50 0.76 57.50 15765 -8249 MART 91 2 0 9.50 0.76 57.50 15765 -8249 MART 91 1 0 9.50 1.16 86.50 16680 8680 MART 91 0 9.50 1.16 86.50 16980 8680 MART 91 0 9.50 1.16 86.87 14190 8044 MART 22 1 0 9.50 1.16 86.87 14190 8044 MART 23 1 0 9.50 1.16 86.87 14190 8044 MART 24 1 0 9.50 1.16 86.87 14190 8044 MART 25 2 0 9.50 8.50 8.51 8916 8080 MART 25 1 0 9.50 1.16 86.87 14190 8044 MART 25 2 0 9.50 8.51 891.88 14919 8044 MART 25 1 0 9.50 1.16 86.87 14190 8044 MART 25 2 0 9.50 8.50 4.67 848.79 16540 8085 MART 27 1 0 9.50 1.16 86.87 14190 8044 MART 25 1 0 9.50 1.16 86.87 14190 8044 MART 26 1 0 9.50 1.16 86.87 14190 8044 MART 27 1 0 9.50 1.16 86.87 14190 8044 MART 27 1 0 9.50 1.16 86.87 14190 8044 MART 27 2 0 9.50 8.50 4.67 848.79 16540 8085 MART 27 1 0 9.50 1.16 86.87 14190 8044 MART 27 2 0 9.50 6.50 449.99 17524 -8455	-11113	19611.00	LP/ITO	DEN				C00. X		COO. 2
PART 18 0 0 15.00 12.48 1464.50 16818 -6769 PART 19 0 0 15.00 5.55 651.12 11998 2017 PART 18 0 0 15.00 5.55 651.12 11998 2017 PART 18 0 0 15.00 12.48 1464.50 16518 8799 PART 18 0 0 15.00 12.48 1464.50 16518 8799 PART 19 0 1 0 9.50 12.61 940.85 14279 -1479 PART 30 2 0 9.50 12.61 940.85 14279 -1479 PART 31 1 0 9.00 0.71 50.55 14518 8240 PART 31 2 0 9.00 0.76 55.76 15142 5240 PART 31 5 0 9.00 0.76 55.41 15766 8240 PART 31 4 0 9.00 0.76 54.41 15766 8240 PART 31 5 0 9.00 0.81 57.60 16830 8240 PART 31 1 1 8.00 0.71 44.75 14518 -5249 PART 31 2 1 8.00 0.76 47.78 15142 -5249 PART 31 2 1 8.00 0.76 47.78 15142 -5249 PART 31 7 0 9.50 1.08 80.65 15765 -8249 PART 31 7 0 9.50 1.18 82.92 16588 -8249 PART 31 8 0 9.50 0.76 57.50 17012 -8249 PART 31 8 0 9.50 0.76 57.50 16765 4420 PART 31 7 0 9.50 1.16 80.65 16585 4420 PART 31 7 0 9.50 1.16 80.50 16585 16589 PART 31 8 0 9.50 0.76 57.50 16765 4420 PART 32 1 0 9.50 0.76 57.50 16765 4420 PART 32 1 0 9.50 0.76 57.50 16765 4420 PART 32 2 0 9.50 0.91 67.85 17014 4420 PART 32 2 0 9.50 0.91 67.85 17014 4420 PART 32 2 0 9.50 0.91 67.85 17014 4420 PART 32 2 0 9.50 1.16 86.59 12516 16708 PART 31 1 0 9.50 1.16 86.59 12516 16708 PART 32 2 0 9.50 6.50 859.28 12940 1678 PART 32 2 0 9.50 6.50 859.28 12940 1678 PART 32 2 0 9.50 1.16 86.87 16415 16712 PART 32 2 0 9.50 1.16 86.87 16415 16712 PART 32 2 0 9.50 1.16 86.87 16410 8044 PART 32 2 0 9.50 1.16 86.87 16410 8044 PART 32 2 0 9.50 5.51 1118 86.92 14815 16719 PART 32 2 0 9.50 6.50 86.92 16865 16729 PART 32 1 0 9.50 1.16 86.87 16410 8044 PART 32 2 0 9.50 6.50 16690 8545 PART 32 1 0 9.50 1.16 86.87 16410 8056 PART 32 1 0 9.50 1.16 86.87 16410 8056 PART 32 1 0 9.50 1.16 86.87 16510 8066 PART 32 1 0 9.50 1.16 86.87 16510 8066 PART 32 1 0 9.50 1.16 86.87 16510 8066 PART 32 1 0 9.50 1.16 86.87 16510 8066 PART 32 1 0 9.50 5.51 411.55 16690 8545 PART 32 2 0 9.50 6.50 461.99 17524 8455	PART	11	0	0	15.00	5.58	651,42	11958	-2677	2056
PART 16 0 0 15.00 5.55 651.42 11999 1217 PART 16 0 0 15.00 10.29 1211.69 16977 8204 PART 16 0 0 15.00 10.29 1211.69 16977 8204 PART 16 0 0 15.00 12.48 1404.50 16618 8799 PART 16 0 0 15.00 12.48 1404.50 16618 8799 PART 17 10 0 9.50 12.61 940.85 14279 1470 PART 19 1 0 9.00 0.71 50.55 14518 8240 PART 19 1 0 9.00 0.76 55.76 15142 5240 PART 19 1 0 9.00 0.76 55.76 15142 5240 PART 19 1 0 9.00 0.76 55.76 15142 5240 PART 19 1 0 9.00 0.78 54.14 15766 8240 PART 19 1 0 9.00 0.79 56.60 16630 8240 PART 19 1 0 9.00 0.71 44.75 14518 -3249 PART 19 1 0 9.00 0.71 44.75 14518 -3249 PART 19 1 0 9.50 0.76 47.78 15142 5249 PART 19 1 0 9.50 1.08 80.65 15765 -8249 PART 19 1 0 9.50 1.11 82.92 16589 -8249 PART 19 1 0 9.50 1.11 82.92 16589 -8249 PART 19 1 0 9.50 0.76 57.80 15765 -8249 PART 19 1 0 9.50 0.76 57.80 15765 4420 PART 19 1 0 9.50 0.76 57.80 16589 4420 PART 19 1 0 9.50 0.76 57.85 17014 4420 PART 19 1 0 9.50 0.76 85.65 16589 1420 PART 19 1 0 9.50 0.76 85.65 16589 1420 PART 19 1 0 9.50 0.76 85.65 16589 1420 PART 19 1 0 9.50 0.76 85.65 16589 1420 PART 20 1 0 9.50 0.76 86.50 12816 1010 PART 20 1 0 9.50 1.16 86.65 12816 1010 PART 20 1 0 9.50 1.16 86.65 12816 1010 PART 20 2 0 9.50 2.46 185.65 16589 12816 1010 PART 20 1 0 9.50 1.16 86.67 14190 8044 PART 21 1 0 9.50 1.16 86.87 14190 8044 PART 22 1 0 9.50 8.50 8.90 1186 86.87 14190 8044 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 25 2 0 9.50 8.51 1869 8085 PART 25 2 0 9.50 8.51 1869 8085 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 25 2 0 9.50 8.51 1658 16590 8044 PART 25 2 0 9.50 8.51 1658 16590 8044 PART 25 1 0 9.50 1.16 86.87 16590 8044 PART 25 2 0 9.50 8.50 4.67 849.79 16590 8044 PART 25 1 0 9.50 1.16 86.87 16590 8044 PART 25 2 0 9.50 8.50 4.67 849.79 16590 8044 PART 26 2 0 9.50 8.50 4.67 849.79 16590 8044 PART 27 1 0 9.50 1.16 86.87 16590 8044 PART 28 2 0 9.50 6.50 464.99 17524 8455	PART	12	0	0	15.00	10.29	1211.69	18977	-8204	2046
MART 18 0 0 15.00 10.29 1211.69 16917 5204 MART 16 0 0 15.00 12.48 1464.60 168 18 8789 MART 30 1 0 9.50 12.61 940.85 14279 1470 MART 30 2 0 9.50 0.71 50.85 14578 1470 MART 31 1 0 9.00 0.71 50.85 14578 5240 MART 31 2 0 9.00 0.76 53.76 15142 5240 MART 31 4 0 9.00 0.78 54.14 15766 8240 MART 31 5 0 9.00 0.78 54.14 15766 8240 MART 31 6 0 9.00 0.78 54.14 15766 8240 MART 31 7 0 9.00 0.79 56.60 16630 8240 MART 91 1 1 8.00 0.71 44.76 14518 -3249 MART 91 1 1 8.00 0.71 44.76 14518 -3249 MART 91 2 1 8.00 0.76 47.78 15142 -8249 MART 91 3 0 9.50 1.08 80.65 15765 -8249 MART 91 7 0 9.50 1.08 80.65 15765 -8249 MART 91 8 0 9.50 1.12 84.15 17012 -8249 MART 91 9 0 9.50 0.84 62.36 16389 4420 MART 91 9 0 9.50 0.84 62.36 16389 4420 MART 91 1 0 9.50 0.86 67.65 16889 4420 MART 91 1 0 9.50 0.86 67.65 16889 4420 MART 91 1 0 9.50 0.81 67.85 17014 4420 MART 91 1 0 9.50 0.81 67.85 17014 4420 MART 91 1 0 9.50 0.81 67.85 17014 4420 MART 91 1 0 9.50 1.16 86.50 16889 4420 MART 91 1 0 9.50 1.16 86.50 16889 4420 MART 91 1 0 9.50 1.16 86.50 16889 4420 MART 19 2 0 9.50 2.96 2.96 2.96 2.96 2.96 2.96 MART 19 1 0 9.50 1.16 86.50 16890 800 MART 19 1 0 9.50 1.16 86.87 1690 800 MART 22 1 0 9.50 1.16 86.87 1690 800 MART 23 1 0 9.50 1.16 86.87 1690 800 MART 24 1 0 9.50 1.16 86.87 1690 800 MART 25 1 0 9.50 1.16 86.87 1690 800 MART 26 2 0 9.50 5.51 118 86.92 14815 1072 MART 27 1 0 9.50 1.16 86.92 14815 1072 MART 28 2 0 9.50 5.51 118 86.92 14815 1072 MART 26 1 0 9.50 1.16 86.87 1690 800 MART 27 1 0 9.50 1.16 86.87 1690 800 MART 26 1 0 9.50 1.16 86.87 1690 800 MART 27 1 0 9.50 1.16 86.92 1690 800 MART 27 1 0 9.50 1.16 86.92 1690 800 MART 28 2 0 9.50 5.51 118 86.92 1690 800 MART 27 1 0 9.50 1.16 86.92 1690 8545 MART 27 1 0 9.50 1.16 86.92 1690 800 MART 28 2 0 9.50 5.50 484.99 17524 8545	PART	18	0	0	15.00	12.48	1464.50	16518	-6763	2046
PART 16 0 0 15.00 12.48 1464.50 16818 8789 PART 30 1 0 3.50 12.61 340.83 14273 1470 PART 31 1 0 3.00 0.71 50.85 14518 8240 PART 31 2 0 3.00 0.76 55.76 15142 8240 PART 31 3 0 3.00 0.76 55.76 15142 8240 PART 31 4 0 3.00 0.78 55.76 15142 8240 PART 31 5 0 3.00 0.78 55.76 15142 8240 PART 31 1 0 3.00 0.79 56.60 16830 8240 PART 31 1 0 8.00 0.71 44.76 14518 8249 PART 31 1 1 8.00 0.71 44.76 14518 8249 PART 31 2 1 8.00 0.71 44.76 14518 8249 PART 31 2 1 8.00 0.71 44.76 14518 8249 PART 31 7 0 3.50 1.08 80.65 15765 8249 PART 31 8 0 3.50 1.11 82.32 16388 8249 PART 31 8 0 3.50 1.12 84.75 17012 8249 PART 31 8 0 3.50 1.16 80.65 15765 4420 PART 32 2 0 3.50 0.84 62.36 16889 4420 PART 32 2 0 3.50 0.84 62.36 16889 4420 PART 31 0 3.50 1.16 86.50 1680 1690 PART 31 0 3.50 1.16 86.50 1680 1690 PART 31 1 0 3.50 1.16 86.65 1580 1690 PART 32 2 0 3.50 1.16 86.65 1690 1690 PART 31 0 3.50 1.16 86.65 1690 1690 PART 32 1 0 3.50 1.16 86.65 1690 1690 PART 31 2 0 3.50 1.16 87.16 12940 1690 PART 32 2 0 3.50 1.16 87.16 12940 1690 PART 32 2 0 3.50 1.16 87.16 12940 1690 PART 32 2 0 3.50 1.16 87.16 12940 1690 PART 32 2 0 3.50 1.16 87.16 12940 1690 PART 32 2 0 3.50 1.16 86.87 14190 16912 PART 32 2 0 3.50 1.16 86.87 14190 16912 PART 32 2 0 3.50 1.16 86.87 14190 16912 PART 32 2 0 3.50 1.16 86.87 14190 16912 PART 32 2 0 3.50 1.16 86.87 14190 16912 PART 32 2 0 3.50 1.16 86.87 14190 16912 PART 32 1 0 3.50 1.16 86.87 14190 16912 PART 32 2 0 3.50 1.16 86.87 16440 1672 PART 32 3 0 3.50 1.16 86.87 16440 8868 PART 32 4 0 3.50 1.16 86.87 16440 8868 PART 32 5 1 0 3.50 1.16 86.87 16440 8868 PART 32 6 0 3.50 1.16 86.87 16440 8868 PART 32 6 0 3.50 1.16 86.87 16590 1672 PART 32 1 0 3.50 1.16 86.87 16590 1672 PART 32 2 0 3.50 6.50 48.99 17324 86.95 PART 32 2 0 3.50 6.50 48.99 17324 86.95 PART 32 2 0 3.50 6.50 48.99 17324 86.95	PART	11	_	-	15.00		651.42	11958	2677	2051
PART 90 1 0 9.50 12.61 940.08 14279 -1479 PART 30 2 0 9.50 12.61 940.08 14279 1470 PART 31 1 0 9.00 0.71 50.85 14518 8240 PART 31 2 0 9.00 0.76 53.76 15142 5240 PART 31 3 0 9.00 0.76 53.76 15142 5240 PART 31 4 0 9.00 0.76 54.14 15766 8240 PART 31 4 0 9.00 0.79 66.60 16890 8240 PART 31 1 0 9.00 0.71 44.76 14518 -3249 PART 31 2 1 8.00 0.71 44.76 14518 -3249 PART 31 2 1 8.00 0.71 44.76 14518 -3249 PART 31 2 1 8.00 0.71 44.76 14518 -3249 PART 31 3 0 9.50 1.08 80.65 15765 -8249 PART 31 7 0 9.50 1.11 82.32 16588 -8249 PART 31 8 0 9.50 1.12 84.15 17012 -8249 PART 32 1 0 9.50 0.76 57.50 15765 1420 PART 32 1 0 9.50 0.76 57.50 15765 1420 PART 32 2 0 9.50 0.91 67.85 17014 1420 PART 32 3 0 9.50 0.91 67.85 17014 1420 PART 32 4 0 9.50 1.16 86.69 12316 1910 PART 30 1 0 9.50 1.16 86.69 12316 1910 PART 30 2 0 9.50 1.16 86.69 12316 1910 PART 31 1 0 9.50 1.16 86.69 12316 1910 PART 32 1 0 9.50 1.16 86.69 12316 1910 PART 32 1 0 9.50 1.16 86.69 12316 1910 PART 32 1 0 9.50 1.16 86.69 12316 1910 PART 32 1 0 9.50 1.16 86.69 12316 1911 PART 32 1 0 9.50 1.16 86.69 12316 1911 PART 32 1 0 9.50 1.16 86.87 14190 1904 PART 32 2 0 9.50 8.50 8.20 889.28 12940 1918 PART 32 2 0 9.50 8.50 1.16 86.87 14190 1904 PART 32 2 0 9.50 8.50 1.16 86.87 14190 1904 PART 32 2 0 9.50 8.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.90 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.91 291.68 14190 1904 PART 32 2 0 9.50 8.90 8.90 8.90 8.90 1908 PART 32 2 0 9.50 8.90 8.90 8.90 8.90 1908 PART 32 2 0 9.50 8.90 8.90 8.90 8.90 1908 PART 32 2 0 9.50 8.90 8.90 8.90 8.90 8.90 8.90 8.90 8.9	PART	15	_	-	15.00	10.29		16977	6204	2051
PART 90 2 0 9.50 12.61 940.68 14279 1470 PART 91 1 0 9.00 0.71 50.55 14518 8240 PART 91 2 0 9.00 0.76 55.76 15142 5240 PART 91 3 0 9.00 0.76 55.76 15142 5240 PART 91 3 0 9.00 0.79 56.60 16390 8240 PART 91 1 0 9.00 0.79 56.60 16390 8240 PART 91 1 0 9.00 0.71 44.76 14518 5240 PART 91 1 0 8.00 0.71 44.76 14518 5249 PART 91 1 0 8.00 0.71 44.76 14518 5249 PART 91 2 1 8.00 0.76 47.78 15142 5249 PART 91 6 0 9.50 1.11 82.52 16588 5849 PART 91 7 0 9.50 1.11 82.52 16588 5849 PART 91 7 0 9.50 1.12 84.15 17012 6849 PART 92 2 0 9.50 0.76 57.50 16765 4420 PART 92 2 0 9.50 0.76 57.50 16765 4420 PART 92 2 0 9.50 0.91 67.55 17014 4420 PART 93 1 0 9.50 1.16 86.50 1689 1420 PART 91 1 0 9.50 1.16 86.50 1689 1420 PART 92 1 0 9.50 1.16 86.50 1680 1690 PART 92 1 0 9.50 1.16 86.50 1680 1690 PART 93 1 0 9.50 1.16 86.57 1690 1690 PART 94 1 0 9.50 1.16 86.69 12376 1691 PART 95 1 0 9.50 1.16 86.69 12376 1691 PART 20 1 0 9.50 1.16 86.69 12376 1691 PART 21 1 0 9.50 1.16 86.69 12376 1691 PART 22 2 0 9.50 6.20 259.28 12940 2785 PART 23 1 0 9.50 1.16 86.67 14190 1690 PART 24 1 0 9.50 1.16 86.87 14190 1690 PART 25 1 0 9.50 1.16 86.87 14190 1694 PART 25 1 0 9.50 1.16 86.87 14190 1694 PART 25 1 0 9.50 1.16 86.87 14190 1694 PART 25 2 0 9.50 8.50 8.51 41195 1694 PART 25 1 0 9.50 1.16 86.87 14190 1694 PART 25 2 0 9.50 8.50 8.51 11155 1649 6118 PART 25 1 0 9.50 1.16 86.87 14190 1694 PART 25 1 0 9.50 1.16 86.87 14190 1694 PART 25 2 0 9.50 8.50 8.51 411.55 1649 6118 PART 25 2 0 9.50 8.50 8.51 41195 16940 1698 PART 25 2 0 9.50 8.50 8.51 41195 16940 1698 PART 25 1 0 9.50 1.16 86.87 16960 1699 1698 PART 26 4 0 9.50 1.16 86.87 16960 1699 1698 PART 27 1 0 9.50 1.16 86.87 16960 1699 1698 PART 28 2 0 9.50 6.50 1699 1699 1698 1698 PART 27 1 0 9.50 1.16 86.87 16690 1672 PART 28 2 0 9.50 6.50 1699 17524 6845	PART	16	0	0	15.00	12.48	1464.50	165 18	£ 759	2051
PART 91 1 0 9.00 0.71 50.55 14518 8240 PART 91 2 0 9.00 0.76 55.76 15142 5240 PART 91 5 0 9.00 0.78 55.76 15142 5240 PART 91 5 0 9.00 0.79 55.60 16830 8240 PART 91 1 0 8.00 0.71 41.76 14516 5240 PART 91 1 1 8.00 0.71 41.76 14516 5249 PART 91 2 1 8.00 0.71 41.76 14516 5249 PART 91 6 0 9.50 1.08 80.65 15763 5249 PART 91 7 0 9.50 1.11 82.52 16588 5249 PART 91 8 0 9.50 1.12 81.51 17012 6249 PART 91 8 0 9.50 0.76 57.50 15765 4420 PART 92 2 0 9.50 0.76 57.50 15765 4420 PART 92 2 0 9.50 0.94 62.96 16589 4420 PART 93 1 0 9.50 0.91 67.85 17014 4420 PART 19 1 0 9.50 1.16 86.50 16850 1690 PART 19 1 0 9.50 1.16 86.65 1650 1650 PART 19 1 0 9.50 1.16 86.65 1650 1650 PART 20 2 0 9.50 8.20 259.28 12910 2795 PART 21 2 0 9.50 1.16 87.16 12910 1000 PART 21 1 0 9.50 1.16 87.16 12910 1000 PART 22 1 0 9.50 1.16 86.87 14190 1072 PART 23 2 0 9.50 1.16 86.87 14190 1072 PART 24 2 0 9.50 1.16 86.87 14190 8044 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 1 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 1 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 1 0 9.50 1.16 86.87 1640 8064 PART 25 1 0 9.50 1.16 86.87 1640 8064 PART 25 1 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 25 2 0 9.50 1.16 86.87 1640 8064 PART 26 4 0 9.50 1.16 86.87 1640 8066 PART 26 2 0 9.50 1.16 86.87 1640 8066 PART 27 1 0 9.50 1.16 86.87 1640 8066 PART 27 1 0 9.50 1.16 86.87 1640 8066 PART 27 2 0 9.50 6.50 6.50 88.99 6072 PART 28 2 0 9.50 6.50 16690 8535 PART 28 2 0 9.50 6.50 16690 8535 PART 27 2 0 9.50 6.50 6.50 88.99 6072 PART 28 2 0 9.50 6.50 6.50 88.99 6072 PART 28 1 0 9.50 1.16 86.87 16590 8535	175	50						14279	-1479	105 1
PART 91 2 0 9.00 0.76 55.76 15142 5240 PART 91 5 0 9.00 0.79 56.50 16890 8240 PART 91 5 0 9.00 0.71 41.76 14518 -5249 PART 91 1 1 8.00 0.71 44.76 14518 -5249 PART 91 2 1 8.00 0.71 44.76 14518 -5249 PART 91 2 1 8.00 0.76 47.78 15142 -8249 PART 91 2 1 8.00 0.76 47.78 15142 -8249 PART 91 7 0 9.50 1.08 80.65 15765 -8249 PART 91 7 0 9.50 1.11 82.52 16888 -8249 PART 91 8 0 9.50 0.76 57.50 15765 4420 PART 92 2 0 9.50 0.76 57.50 15765 4420 PART 18 1 0 9.50 0.91 67.85 17014 4420 PART 18 1 0 9.50 0.91 67.85 17014 4420 PART 19 1 0 9.50 1.16 86.50 16890 1070 PART 19 1 0 9.50 1.16 86.50 1690 1690 PART 19 2 0 9.50 2.46 185.65 1690 8880 PART 20 1 0 9.50 2.46 185.65 1690 8880 PART 21 1 0 9.50 1.16 86.69 12515 8671 PART 22 1 0 9.50 8.20 8.36 12940 2795 PART 22 1 0 9.50 1.16 86.69 12515 8671 PART 23 1 0 9.50 1.16 86.69 12515 8671 PART 24 2 0 9.50 8.20 8.36 1890 1072 PART 25 2 0 9.50 8.50 8.30 8.30 8.30 8.30 PART 26 1 0 9.50 1.16 86.87 1490 8044 PART 27 2 0 9.50 8.50 8.51 1690 8044 PART 28 1 0 9.50 1.16 86.92 14815 1072 PART 28 2 0 9.50 8.50 8.51 1690 8044 PART 28 2 0 9.50 8.50 8.51 1690 8044 PART 27 2 0 9.50 8.50 8.51 1690 8044 PART 27 2 0 9.50 6.50 1.16 86.87 1690 8044 PART 27 2 0 9.50 6.50 1.16 86.87 1690 8044 PART 28 2 0 9.50 6.50 16690 8545 PART 27 1 0 9.50 1.16 86.87 1690 8044 PART 26 2 0 9.50 6.50 16690 8545 PART 27 1 0 9.50 1.16 86.87 1690 8044 PART 27 2 0 9.50 6.50 6.50 16690 8545 PART 27 1 0 9.50 1.16 86.87 16690 8045 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 1 0 9.50 1.16 86.87 16690 8054 PART 27 1 0 9.50 1.16 86.87 16690 8054 PART 27 1 0 9.50 1.16 86.87 16690 8054 PART 28 1 0 9.50 1.16 86.87 16690 8054 PART 28 1 0 9.50 1.16 86.87 16690 8054 PART 28 1 0 9.50 1.16 86.87 16690 8054 PART 28 1 0 9.50 1.16 86.87 16690 8054 PART 28 1 0 9.50 1.16 86.87 16690 8054	PART	_						14279	1470	1051
MART 91 5 0 9.00 0.76 51.14 15T66 \$240 MART 91 4 0 9.00 0.79 66.50 16590 8240 MART 91 1 1 8.00 0.81 57.60 17014 8240 MART 91 1 1 8.00 0.71 44.76 14518 -8249 MART 91 2 1 8.00 0.76 47.78 15142 -8249 MART 91 6 0 9.50 1.08 80.65 15T65 -8249 MART 91 7 0 9.50 1.11 82.92 16586 -8249 MART 91 8 0 9.50 1.12 84.15 17012 -8249 MART 91 8 0 9.50 0.76 57.50 16T6S 4420 MART 92 1 0 9.50 0.76 57.50 16T6S 4420 MART 92 2 0 9.50 0.94 62.96 16589 4420 MART 19 1 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 1650 1690 MART 19 1 0 9.50 1.16 86.50 1690 1670 MART 19 2 0 9.50 1.16 86.50 1690 1670 MART 19 1 0 9.50 1.16 86.50 1690 1670 MART 19 1 0 9.50 1.16 86.50 1690 1670 MART 19 2 0 9.50 1.16 86.50 1690 1670 MART 19 2 0 9.50 1.16 86.50 1690 1670 MART 19 2 0 9.50 1.16 86.50 1690 1670 MART 19 2 0 9.50 1.16 86.50 1690 1670 MART 20 1 0 9.50 1.16 86.50 1690 1670 MART 20 2 0 9.50 1.16 86.50 1690 1670 MART 20 2 0 9.50 1.16 87.66 18565 1690 1670 MART 20 1 0 9.50 1.16 86.97 1690 1670 MART 20 2 0 9.50 8.20 89.20 12940 1678 MART 22 1 0 9.50 1.16 86.97 14190 1672 MART 23 2 0 9.50 1.16 86.97 14190 1672 MART 24 1 0 9.50 1.16 86.97 14190 1672 MART 25 2 0 9.50 8.50 8.51 168.75 14815 1672 MART 26 2 0 9.50 8.50 1.18 86.92 14815 1672 MART 27 2 0 9.50 8.50 1.18 86.92 14815 1672 MART 28 2 0 9.50 1.16 86.97 16906 1672 MART 28 2 0 9.50 1.16 86.97 16906 1672 MART 27 1 0 9.50 1.16 86.97 1690 1672 MART 28 1 0 9.50 1.16 86.97 16906 1672 MART 28 1 0 9.50 1.16 86.97 16690 1672 MART 28 2 0 9.50 6.50 484.99 17524 -6475	MAT	31	-	Ø	9.00	0.71	50.55	145 18	8240	1226
MART 91 4 0 9.00 0.79 66.60 16890 8240 MART 91 5 0 9.00 0.81 67.60 17014 8240 MART 91 1 1 8.00 0.71 44.76 14518 -3249 MART 91 2 1 8.00 0.76 47.78 16142 -8249 MART 91 6 0 9.50 1.08 80.65 15765 -8249 MART 91 7 0 9.50 1.11 82.92 16888 -8249 MART 91 7 0 9.50 1.12 84.15 17012 -8249 MART 91 7 0 9.50 1.12 84.15 17012 -8249 MART 92 1 0 9.50 0.84 62.96 16889 4420 MART 92 2 0 9.50 0.84 62.96 16889 4420 MART 18 1 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 16890 1070 MART 19 1 0 9.50 1.16 86.50 16890 1070 MART 19 2 0 9.50 1.16 86.50 1690 1070 MART 20 1 0 9.50 1.16 86.69 12316 1070 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 2 0 9.50 1.16 86.87 14190 1072 MART 22 3 9.50 1.16 86.87 14190 1072 MART 23 4 0 9.50 1.16 86.87 14190 1072 MART 24 2 0 9.50 1.16 86.87 14190 1072 MART 25 2 0 9.50 1.16 86.87 14190 1072 MART 25 2 0 9.50 1.16 86.87 14190 1072 MART 27 2 0 9.50 1.16 86.87 14190 1072 MART 28 1 0 9.50 1.16 86.87 14190 1072 MART 28 2 0 9.50 1.16 86.97 15440 1072 MART 27 2 0 9.50 1.16 86.97 15440 8808 MART 28 1 0 9.50 1.16 86.97 15440 8808 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8047 MART 28 2 0 9.50 1.16 86.87 1690 8048 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8044 MART 28 2 0 9.50 1.16 86.87 1690 8046 MART 28 2 0 9.50 1.16 86.87 1690 8046 MART 28 2 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 1 0 9.50 1.16 86.87 1690 8046 MART 28 2 0 9.50 1.16 86.87 1690 8046 MART 28 2 0 9.50 1.16 86.87 1690 8046 MART 28 2 0 9.50 1.16 86.87 1690 8046 MART 28 2 0 9.50 1.16 86.8	MAL	91		0	9.00	0.76	<i>58.76</i>	15142	5210	1175
### 91 5 0 9.00 0.81 57.60 17014 8240 #### 91 1 1 8.00 0.71 44.76 14518 -3249 #### 91 2 1 8.00 0.76 47.78 15142 -3249 ###### 91 6 0 9.50 1.08 80.65 15165 -3249 #### 91 7 0 9.50 1.11 82.92 16588 -3249 #### 91 8 0 9.50 1.12 84.15 17012 -3249 #### 91 8 0 9.50 0.76 57.50 15765 4420 #### 92 2 0 9.50 0.76 57.50 16589 4420 #### 92 2 0 9.50 0.91 67.85 17014 4420 #### 19 1 0 9.50 0.91 67.85 17014 4420 #### 19 1 0 9.50 1.16 86.69 12516 1910 #### 19 2 0 9.50 2.46 185.65 16690 1070 #### 20 2 0 9.50 2.96 18.96 12516 1071 #### 20 2 0 9.50 2.96 18.96 12516 1071 #### 20 2 0 9.50 3.50 5.20 2.95 218.95 12516 #### 21 1 0 9.50 1.16 86.69 12516 1080 #### 22 1 0 9.50 1.16 86.69 12516 1080 #### 22 1 0 9.50 1.16 86.69 12516 1080 #### 21 2 0 9.50 5.20 2.95 218.95 12516 1080 ##### 22 2 0 9.50 5.50 5.20 259.20 12940 1080 ##### 22 2 0 9.50 5.50 5.51 1990 8044 #### 22 2 0 9.50 5.50 5.51 1990 8044 #### 25 2 0 9.50 5.50 5.51 1990 8044 #### 25 2 0 9.50 5.50 5.51 1990 8044 ##### 25 2 0 9.50 5.50 5.51 1990 8044 ##### 25 2 0 9.50 5.50 5.51 1990 8044 ##### 25 2 0 9.50 5.50 5.51 1990 8044 ##################################	TRK	31	5	0	3.00	0.76	54.14	15766	\$240	1145
MART 91 1 1 1 8.00 0.71 44.76 14518 -5249 MART 91 2 1 8.00 0.76 47.78 15142 -5249 MART 91 7 0 9.50 1.08 80.65 15763 -5249 MART 91 7 0 9.50 1.11 82.92 16588 -5849 MART 91 8 0 9.50 0.76 57.50 15765 4420 MART 92 1 0 9.50 0.76 57.50 15765 4420 MART 92 2 0 9.50 0.94 62.96 16589 4420 MART 92 8 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 16690 1070 MART 19 1 0 9.50 1.16 86.51 1690 1070 MART 19 2 0 9.50 1.16 87.16 12940 1080 MART 20 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 22 2 0 9.50 5.20 599.28 12910 2785 MART 23 2 0 9.50 1.16 86.92 14815 1072 MART 24 2 0 9.50 1.16 86.92 14815 1072 MART 25 2 0 9.50 1.16 86.92 14815 1072 MART 26 2 0 9.50 1.16 86.92 14815 1072 MART 27 2 0 9.50 1.16 86.92 14815 1072 MART 28 1 0 9.50 1.16 86.92 14815 1072 MART 28 2 0 9.50 1.16 86.92 14815 1072 MART 25 1 0 9.50 1.16 86.92 14815 1072 MART 27 2 0 9.50 5.51 411.56 15419 -8112 MART 27 2 0 9.50 1.16 86.92 14815 1072 MART 28 2 0 9.50 1.16 86.92 14815 1072 MART 28 2 0 9.50 1.16 86.92 14815 1072 MART 28 2 0 9.50 1.16 86.92 16690 8545 MART 28 1 0 9.50 1.16 86.92 16690 8545 MART 28 2 0 9.50 1.16 86.97 16690 8545 MART 28 2 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.97 16690 1072 MART 28 1 0 9.50 1.16 86.90 16690 1072	MAL	31	4	0	9.00	0.79	56. <i>5</i> 0	16890	8240	1112
MART 91 2 1 8.00 0.76 47.78 15142 -8249 MART 91 6 0 9.50 1.08 80.65 15765 -8249 MART 91 7 0 9.50 1.11 82.52 16588 -8249 MART 91 8 0 9.50 1.12 84.15 17012 -8249 MART 92 1 0 9.50 0.76 57.50 16765 4420 MART 92 1 0 9.50 0.84 62.36 16589 4420 MART 92 2 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 1650 1670 MART 19 1 0 9.50 1.16 86.69 12516 1671 MART 19 2 0 9.50 2.46 185.65 1650 8680 MART 20 1 0 9.50 1.16 86.69 12516 1671 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 22 1 0 9.50 1.17 87.25 15565 1680 MART 23 2 0 9.50 8.20 259.28 12910 2785 MART 24 2 0 9.50 1.16 86.87 14190 1072 MART 25 1 0 9.50 1.16 86.87 14190 1072 MART 27 1 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 27 1 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 27 1 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 1 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072 MART 28 2 0 9.50 1.16 86.87 1540 1072	MRT	91	5	0	9.00	0.81	57,60	17014	5240	1095
MART 91 6 0 9.50 1.08 80.65 15765 -8249 MART 91 7 0 9.50 1.11 82.32 16388 -8148 MART 91 8 0 9.50 1.12 84.15 17012 -6249 MART 91 8 0 9.50 0.76 57.50 16765 4420 MART 92 1 0 9.50 0.84 62.36 16589 4420 MART 92 8 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 17065 1940 MART 19 1 0 9.50 1.16 86.50 17090 8580 MART 19 2 0 9.50 1.16 86.50 17090 8580 MART 19 2 0 9.50 1.16 86.69 12376 1071 MART 19 2 0 9.50 1.16 87.16 12940 1080 MART 20 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.17 87.25 15565 1080 MART 22 1 0 9.50 8.20 259.28 12940 2795 MART 23 2 0 9.50 8.51 117 87.25 15565 1080 MART 24 2 0 9.50 8.51 261.68 14190 8044 MART 25 1 0 9.50 1.16 86.87 14190 8044 MART 25 1 0 9.50 1.16 86.87 1566 1080 MART 25 1 0 9.50 1.16 86.87 1569 1080 MART 25 1 0 9.50 1.16 86.87 1569 8044 MART 25 1 0 9.50 1.16 86.87 1569 8044 MART 25 1 0 9.50 1.16 86.87 1569 8044 MART 25 1 0 9.50 1.16 86.87 1569 8044 MART 25 1 0 9.50 1.16 86.87 1569 8044 MART 25 1 0 9.50 1.16 86.87 1569 8044 MART 26 2 0 9.50 5.51 410.56 1549 -8116 MART 26 2 0 9.50 1.16 86.87 16690 8044 MART 26 2 0 9.50 1.16 86.87 16690 8044 MART 26 2 0 9.50 1.16 86.87 16690 8089 MART 27 1 0 9.50 1.16 86.87 16690 8089 MART 27 1 0 9.50 1.16 86.87 16690 8089 MART 27 2 0 9.50 6.50 484.99 17524 -8425	MRT	91	1	1	8.00	0.71	44.76	145 18	-5249	1226
MART 91 7 0 9.50 1.11 82.92 16588 -619 MART 91 8 0 9.50 1.12 84.15 17012 -6249 MART 92 1 0 9.50 0.76 57.50 15765 4420 MART 92 1 0 9.50 0.84 62.95 16589 4420 MART 92 8 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 11690 1010 MART 19 1 0 9.50 1.16 86.50 11690 1010 MART 19 1 0 9.50 1.16 86.69 12576 1010 1010 MART 19 2 0 9.50 2.46 185.65 11690 1010 MART 19 2 0 9.50 2.46 185.65 11690 1010 MART 19 2 0 9.50 2.46 185.65 11690 1010 MART 19 2 0 9.50 2.98 218.98 12575 1011 1010 MART 20 2 0 9.50 2.98 218.98 12575 1011 MART 20 2 0 9.50 2.98 218.98 12575 1011 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 2 0 9.50 8.20 259.28 12940 2788 MART 22 1 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.26 16465 1012 MART 22 2 0 9.50 8.91 291.68 14190 8044 MART 24 2 0 9.50 1.16 86.87 14190 8044 MART 25 1 0 9.50 1.16 86.87 16400 1072 MART 26 1 0 9.50 1.16 86.87 16400 8006 MART 26 1 0 9.50 1.16 86.87 16500 1072 MART 26 1 0 9.50 1.16 86.87 16500 1072 MART 26 1 0 9.50 1.16 86.87 16500 1072 MART 27 2 0 9.50 6.50 4.67 848.79 15440 8806 1072 MART 27 2 0 9.50 6.50 4.67 848.79 15440 8806 1072 MART 27 2 0 9.50 6.50 4.67 848.79 15440 8806 1072 MART 27 2 0 9.50 6.50 6.50 484.99 17524 8875	MRT	91	Ž	f	8.00	0.76	47.78	15112	-8249	1175
MART 91 7 0 9.50 1.11 82.92 16588 -619 MART 91 8 0 9.50 1.12 84.15 17012 -6249 MART 92 1 0 9.50 0.76 57.50 15765 4420 MART 92 1 0 9.50 0.84 62.95 16589 4420 MART 92 8 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 11690 1010 MART 19 1 0 9.50 1.16 86.50 11690 1010 MART 19 1 0 9.50 1.16 86.69 12576 1010 1010 MART 19 2 0 9.50 2.46 185.65 11690 1010 MART 19 2 0 9.50 2.46 185.65 11690 1010 MART 19 2 0 9.50 2.46 185.65 11690 1010 MART 19 2 0 9.50 2.98 218.98 12575 1011 1010 MART 20 2 0 9.50 2.98 218.98 12575 1011 MART 20 2 0 9.50 2.98 218.98 12575 1011 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 2 0 9.50 8.20 259.28 12940 2788 MART 22 1 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.16 15565 1000 MART 22 2 0 9.50 8.64 264.26 16465 1012 MART 22 2 0 9.50 8.91 291.68 14190 8044 MART 24 2 0 9.50 1.16 86.87 14190 8044 MART 25 1 0 9.50 1.16 86.87 16400 1072 MART 26 1 0 9.50 1.16 86.87 16400 8006 MART 26 1 0 9.50 1.16 86.87 16500 1072 MART 26 1 0 9.50 1.16 86.87 16500 1072 MART 26 1 0 9.50 1.16 86.87 16500 1072 MART 27 2 0 9.50 6.50 4.67 848.79 15440 8806 1072 MART 27 2 0 9.50 6.50 4.67 848.79 15440 8806 1072 MART 27 2 0 9.50 6.50 4.67 848.79 15440 8806 1072 MART 27 2 0 9.50 6.50 6.50 484.99 17524 8875	MRT	91	6	0	9,50	1.08	60.65	15765	-8249	1163
MART 31 8 0 9.50 1.12 84.15 17012 -8249 MART 52 1 0 9.50 0.76 57.50 16765 4420 MART 32 2 0 9.50 0.84 62.36 16389 4420 MART 32 8 0 9.50 0.91 67.85 17014 4420 MART 19 1 0 9.50 1.16 86.50 11690 1940 MART 19 1 0 9.50 1.16 86.69 12316 1071 MART 20 1 0 9.50 1.16 86.69 12316 1071 MART 20 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 21 1 0 9.50 1.16 87.16 12940 1080 MART 22 2 0 9.50 5.20 859.28 12940 2785 MART 23 2 0 9.50 1.17 87.25 15565 1080 MART 24 2 0 9.50 1.17 87.25 15565 1080 MART 25 1 0 9.50 1.16 86.87 14190 1072 MART 28 2 0 9.50 1.16 86.87 14190 8044 MART 28 2 0 9.50 1.16 86.87 14190 8044 MART 28 2 0 9.50 1.16 86.87 14190 8044 MART 28 2 0 9.50 1.16 86.87 1640 1072 MART 27 1 0 9.50 1.16 86.87 1640 1072 MART 28 2 0 9.50 1.16 86.87 1640 1072 MART 27 1 0 9.50 1.16 86.87 1640 808 MART 28 2 0 9.50 1.16 86.87 1640 808 MART 27 1 0 9.50 1.16 86.87 1640 808 MART 28 2 0 9.50 1.16 86.87 1640 808 MART 28 2 0 9.50 1.16 86.87 1640 808 MART 28 1 0 9.50 1.16 86.87 1640 808 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.16 86.87 16690 878 MART 28 1 0 9.50 1.04 77.57 17515 1204	MAT	91	7	0		1.11	82.52	16588		1181
PART 52 1 0 9.50 0.76 57.50 16765 4420 PART 92 2 0 9.50 0.94 62.56 16589 4420 PART 92 8 0 9.50 0.91 67.85 17014 4420 PART 19 1 0 9.50 1.16 86.50 11690 1070 PART 19 1 0 9.50 1.16 86.69 12515 1071 PART 20 1 0 9.50 1.16 86.69 12515 1071 PART 21 1 0 9.50 1.16 87.16 12940 1080 PART 21 1 0 9.50 1.16 87.16 12940 1080 PART 21 2 0 9.50 5.20 259.28 12940 2785 PART 22 1 0 9.50 5.20 259.28 12940 2785 PART 22 1 0 9.50 1.17 87.25 15565 1080 PART 22 1 0 9.50 1.17 87.25 15565 1080 PART 23 2 0 9.50 8.54 264.16 15565 2928 PART 23 1 0 9.50 1.16 86.87 14190 1072 PART 24 2 0 9.50 1.16 86.87 14190 1072 PART 25 1 0 9.50 1.16 86.87 14190 8044 PART 24 2 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 26 2 0 9.50 1.16 86.87 15440 1072 PART 27 1 0 9.50 1.16 86.87 15440 808 PART 26 1 0 9.50 1.16 86.87 15440 808 PART 26 1 0 9.50 1.16 86.87 15440 808 PART 26 1 0 9.50 1.16 86.87 1640 808 PART 27 1 0 9.50 1.16 86.87 1640 808 PART 28 2 0 9.50 1.16 86.87 16590 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 28 2 0 9.50 1.16 86.87 16590 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 27 2 0 9.50 1.16 86.87 16590 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 27 2 0 9.50 1.16 86.87 16590 1072 PART 28 2 0 9.50 1.16 86.87 16590 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 28 1 0 9.50 1.16 86.87 16590 1072 PART 28 1 0 9.50 1.16 86.87 16590 1072 PART 28 1 0 9.50 1.16 86.87 16590 1072 PART 28 1 0 9.50 1.16 86.87 16590 1072	MRT	31		0	3.50		84. 15	17012	-6249	1115
PART 92 2 0 9.50 0.84 62.56 16589 4420 PART 92 8 0 9.50 0.91 67.85 17014 4420 PART 18 1 0 9.50 1.16 86.50 11650 1010 PART 19 1 0 9.50 1.16 86.69 12516 1071 PART 20 1 0 9.50 1.16 86.69 12516 1071 PART 21 1 0 9.50 1.16 87.16 12940 1080 PART 21 2 0 9.50 1.17 87.25 15565 1080 PART 22 1 0 9.50 1.17 87.25 15565 1080 PART 23 1 0 9.50 1.16 86.87 14190 1072 PART 25 1 0 9.50 1.16 86.87 14190 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 2 0 9.50 5.51 411.55 15449 -8116 PART 25 1 0 9.50 1.16 86.87 15440 808 PART 25 1 0 9.50 1.16 86.87 15440 808 PART 25 1 0 9.50 1.16 86.87 15440 808 PART 25 1 0 9.50 1.16 86.87 15440 808 PART 26 2 0 9.50 5.51 411.55 15449 -8116 PART 27 2 0 9.50 1.16 86.87 15450 1072 PART 28 2 0 9.50 5.51 115 86.92 16068 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 28 2 0 9.50 5.54 890.60 16900 8585 PART 27 1 0 9.50 1.16 86.87 16590 1072 PART 28 1 0 9.50 1.16 86.87 16590 1072 PART 28 1 0 9.50 1.16 86.87 16590 1072	MRT	92	1	0	9.50	0.76	57.50	15765	4420	1405
ART 92 8 0 9.50 0.91 67.85 17014 4420 ART 18 1 0 9.50 4.12 507.28 10065 1940 ART 19 1 0 9.50 1.16 86.50 11690 8580 ART 20 1 0 9.50 2.46 185.65 11690 8580 ART 20 2 0 9.50 2.95 218.95 12515 1071 ART 21 1 0 9.50 1.16 87.16 12940 1080 ART 21 2 0 9.50 1.17 87.25 15565 1080 ART 22 1 0 9.50 1.17 87.25 15565 1080 ART 22 1 0 9.50 1.16 86.87 14190 1072 ART 25 2 0 9.50 8.91 291.68 14190 8044 ART 26 1 0 9.50 1.16 86.97 14190 1072 ART 27 2 0 9.50 1.16 86.97 15440 1072 ART 28 1 0 9.50 1.16 86.87 15565 1072 ART 28 1 0 9.50 1.16 86.87 15419 8044 ART 27 1 0 9.50 1.16 86.87 15419 8044 ART 28 2 0 9.50 8.91 291.68 14190 8044 ART 27 1 0 9.50 1.16 86.97 15440 1072 ART 28 1 0 9.50 1.16 86.97 15440 1072 ART 28 2 0 9.50 5.51 410.56 15419 8116 ART 25 1 0 9.50 1.16 86.87 1540 1072 ART 26 2 0 9.50 5.51 410.56 15419 8116 ART 26 1 0 9.50 1.16 86.87 16690 1072 ART 27 2 0 9.50 6.50 481.99 17524 8675										1544
ART 18 1 0 9.50 1.16 86.50 11690 1010 MRT 19 1 0 9.50 1.16 86.50 11690 1010 MRT 19 2 0 9.50 2.46 185.65 11690 2680 MRT 20 1 0 9.50 1.16 86.69 12515 8617 MRT 20 2 0 9.50 2.95 218.95 12515 8617 MRT 21 1 0 9.50 1.16 87.16 12940 1080 MRT 21 2 0 9.50 8.20 259.28 12940 2785 MRT 22 1 0 9.50 1.17 87.25 15565 1080 MRT 22 2 0 9.50 8.51 261.16 15965 2928 MRT 22 3 0 9.50 1.16 86.87 14190 8044 MRT 25 1 0 9.50 1.16 86.87 14190 8044 MRT 27 2 0 9.50 1.16 86.92 14815 1012 MRT 28 1 0 9.50 1.16 86.92 14815 1012 MRT 28 1 0 9.50 1.16 86.97 15440 1072 MRT 28 1 0 9.50 1.16 86.97 15440 1072 MRT 27 2 0 9.50 5.51 111.55 16419 8116 MRT 28 2 0 9.50 1.16 86.87 15440 1072 MRT 28 2 0 9.50 1.16 86.87 15440 1072 MRT 28 2 0 9.50 1.16 86.87 15440 1072 MRT 28 2 0 9.50 1.16 86.87 15640 1072 MRT 28 2 0 9.50 1.16 86.87 15640 1072 MRT 28 1 0 9.50 1.16 86.92 16065 1072 MRT 27 2 0 9.50 1.16 86.92 16065 1072 MRT 28 1 0 9.50 1.16 86.97 15640 8806 MRT 27 2 0 9.50 1.16 86.97 16690 1072 MRT 28 1 0 9.50 1.16 86.97 16690 1072 MRT 28 1 0 9.50 1.16 86.97 16690 8585 MRT 27 2 0 9.50 6.50 481.99 17524 8675										1296
### 19 1 0 9.50 1.16 86.50 11690 1070 #### 19 2 0 9.50 2.46 185.65 11690 #580 #### 20 1 0 9.50 1.46 86.69 12516 1071 #### 21 1 0 9.50 1.16 87.16 12940 1080 #### 21 1 0 9.50 1.17 87.25 15565 1080 #### 22 1 0 9.50 8.20 259.28 12940 2795 #### 22 1 0 9.50 8.54 264.16 15565 2928 #### 22 2 0 9.50 8.54 264.16 15565 2928 #### 25 2 0 9.50 8.51 291.68 14190 8044 #### 25 2 0 9.50 8.91 291.68 14190 8044 #### 25 2 0 9.50 8.91 291.68 14190 8044 #### 25 2 0 9.50 8.91 291.68 14190 8044 #### 25 2 0 9.50 8.91 291.68 14190 8044 #### 25 2 0 9.50 8.91 1.16 86.92 14815 1072 #### 25 2 0 9.50 8.91 1.16 86.92 14815 1072 ##### 25 1 0 9.50 1.16 86.92 14815 8176 ##### 25 2 0 9.50 1.16 86.92 14815 8176 #### 25 4 0 9.50 1.16 86.92 16065 1072 ##### 26 4 0 9.50 1.16 86.92 16065 1072 ##### 26 1 0 9.50 1.16 86.92 16065 1072 ##### 26 1 0 9.50 1.16 86.92 16065 1072 ##### 27 2 0 9.50 5.51 11.6 86.92 16065 1072 ##### 27 2 0 9.50 5.54 890.60 16090 8585 ##### 27 2 0 9.50 5.54 890.60 16090 8585 ##### 28 1 0 9.50 1.04 77.57 17515 1204 ##### 28 1 0 9.50 1.04 77.57 17515 1204			_	-						122
ART 19 2 0 9.50 2.46 185.65 11690 2580 ART 20 1 0 9.50 1.16 86.69 12515 1671 ART 20 2 0 9.50 1.16 87.16 12940 1080 ART 21 1 0 9.50 1.16 87.16 12940 2785 ART 21 1 0 9.50 1.17 87.25 15565 1080 ART 21 2 0 9.50 1.17 87.25 15565 1080 ART 22 1 0 9.50 1.17 87.25 15565 1080 ART 22 2 0 9.50 8.51 264.16 15565 2928 ART 28 1 0 9.50 1.16 86.87 14190 1072 ART 27 1 0 9.50 1.16 86.87 14190 1072 ART 28 2 0 9.50 8.91 291.68 14190 8044 ART 27 1 0 9.50 1.18 86.92 14815 1079 ART 27 2 0 9.50 5.51 411.56 15440 1078 ART 25 1 0 9.50 1.16 86.87 15440 1078 ART 25 1 0 9.50 1.16 86.87 15440 1078 ART 25 1 0 9.50 1.16 86.87 15440 1078 ART 25 1 0 9.50 1.16 86.87 15440 1078 ART 25 1 0 9.50 1.16 86.87 15440 1078 ART 25 1 0 9.50 1.16 86.87 15440 8808 ART 25 1 0 9.50 1.16 86.87 15440 8808 ART 26 2 0 9.50 5.51 411.56 1649 8808 ART 26 1 0 9.50 1.16 86.92 16068 1072 ART 27 1 0 9.50 1.16 86.92 16068 1072 ART 27 2 0 9.50 5.51 492 567.10 18068 8599 ART 27 2 0 9.50 5.51 499 60 16090 8585 ART 27 2 0 9.50 5.51 499 60 16090 8585 ART 27 2 0 9.50 5.51 499 60 16090 8585 ART 27 2 0 9.50 5.51 499 60 16090 8585 ART 28 1 0 9.50 1.04 77.57 17515 1204 ART 28 1 0 9.50 1.04 77.57 17515 1204 ART 28 1 0 9.50 1.04 77.57 17515 1204 ART 28 1 0 9.50 6.50 481.99 17524 8675	ART	19	•	Õ						994
ART 20 1 0 9.50 1.16 86.69 12515 1071 ART 20 2 0 9.50 2.95 218.98 12515 1677 ART 21 1 0 9.50 1.16 87.16 12940 1080 ART 21 2 0 9.50 8.20 259.28 12940 2785 ART 22 1 0 9.50 1.17 87.23 15565 1080 ART 22 1 0 9.50 8.64 264.16 15565 2928 ART 22 2 0 9.50 8.64 264.16 15565 2928 ART 28 1 0 9.50 1.16 86.87 14190 1072 ART 29 1 0 9.50 1.16 86.97 14190 1072 ART 29 1 0 9.50 1.16 86.92 14815 1072 ART 29 1 0 9.50 1.16 86.93 14190 1072 ART 28 1 0 9.50 1.16 86.93 14815 8176 ART 28 1 0 9.50 1.16 86.87 15440 1072 ART 25 2 0 9.50 5.51 411.55 15449 8116 ART 25 1 0 9.50 1.16 86.87 16590 1072 ART 26 2 0 9.50 4.67 848.79 18440 8808 ART 26 1 0 9.50 1.16 86.92 16065 1072 ART 26 2 0 9.50 1.16 86.92 16065 1072 ART 27 1 0 9.50 1.16 86.97 16590 8585 ART 27 2 0 9.50 5.84 899.60 16690 8585 ART 27 2 0 9.50 5.84 899.60 16690 8585 ART 28 1 0 9.50 1.04 77.57 17515 1204 ART 28 1 0 9.50 1.04 77.57 17515 1204		_	-							IBN
ART 20 2 0 9.50 2.98 218.98 12940 1080 ART 21 1 0 9.50 1.16 87.16 12940 1080 ART 21 2 0 9.50 8.20 289.28 12940 2788 ART 22 1 0 9.50 1.17 87.23 15565 1080 ART 22 2 0 9.50 8.54 264.16 15565 2928 ART 28 1 0 9.50 1.16 86.87 14190 1072 ART 29 1 0 9.50 1.16 86.92 14815 1072 ART 24 2 0 9.50 1.16 86.92 14815 1072 ART 25 2 0 9.50 1.16 86.92 14815 1072 ART 25 2 0 9.50 1.16 86.92 14815 1072 ART 26 2 0 9.50 1.16 86.87 15440 1072 ART 25 2 0 9.50 5.51 111.55 15419 -8112 ART 26 4 0 9.50 5.51 111.55 15419 -8112 ART 26 1 0 9.50 1.16 86.92 16065 1072 ART 26 2 0 9.50 1.16 86.92 16065 1072 ART 27 2 0 9.50 1.16 86.97 16590 1072 ART 27 2 0 9.50 1.16 86.97 16590 1072 ART 27 2 0 9.50 5.51 1755 1204 ART 27 2 0 9.50 5.54 599.60 16690 8585 ART 28 1 0 9.50 1.04 77.57 17515 1204 ART 28 1 0 9.50 1.04 77.57 17515 1204		-								952
ART 21 1 0 9.50 1.16 87.16 12940 1080 ART 21 2 0 9.50 8.20 259.28 12940 2795 ART 22 1 0 9.50 1.17 87.23 15565 1080 ART 22 1 0 9.50 8.54 264.16 15565 2928 ART 28 1 0 9.50 1.16 86.87 14190 1072 ART 28 2 0 9.50 8.91 291.68 14190 8044 ART 24 1 0 9.50 1.18 86.92 14815 1072 ART 25 2 0 9.50 4.20 515.45 14815 6176 ART 25 1 0 9.50 1.18 86.87 15440 1072 ART 25 2 0 9.50 5.51 111.55 16419 -8112 ART 26 1 0 9.50 1.16 86.87 15440 4072 ART 26 2 0 9.50 5.51 111.55 16419 -8112 ART 26 2 0 9.50 1.16 86.92 16065 1072 ART 26 1 0 9.50 1.16 86.92 16065 1072 ART 27 2 0 9.50 1.16 86.92 16065 1072 ART 27 2 0 9.50 1.16 86.87 16590 1072 ART 27 2 0 9.50 5.51 1.17.57 17515 1204 ART 28 1 0 9.50 1.04 77.57 17515 1204		_								1290
ART 21 2 0 9.50 8.20 259.28 12940 2795 MRT 22 1 0 9.50 1.17 87.25 15565 1080 MRT 22 2 0 9.50 8.54 264.16 15565 2928 MRT 28 1 0 9.50 1.16 86.87 14190 8044 MRT 29 2 0 9.50 1.18 86.92 14815 1012 MRT 24 2 0 9.50 1.18 86.92 14815 1012 MRT 24 2 0 9.50 1.18 86.92 14815 8116 MRT 25 1 0 9.50 1.18 86.87 15440 1078 MRT 25 2 0 9.50 5.51 111.55 16419 8118 MRT 26 4 0 9.50 5.51 111.55 16419 8118 MRT 26 4 0 9.50 1.16 86.87 15440 8806 MRT 26 1 0 9.50 1.16 86.92 18065 1072 MRT 26 2 0 9.50 1.16 86.92 18065 1072 MRT 27 2 0 9.50 1.16 86.97 16590 1072 MRT 27 2 0 9.50 5.51 116 86.87 16590 1072 MRT 27 2 0 9.50 5.54 899.60 18090 8585 MRT 27 2 0 9.50 6.50 481.99 17524 8675										906
MRT 22 1 0 9.50 1.17 87.25 15565 1080 MRT 22 2 0 9.50 8.54 264.16 15565 2928 MRT 28 1 0 9.50 1.16 86.87 14190 1072 MRT 28 2 0 9.50 8.91 291.68 14190 8044 MRT 24 1 0 9.50 1.16 86.92 14816 1079 MRT 24 2 0 9.50 1.16 86.92 14816 1079 MRT 25 1 0 9.50 1.16 86.87 15440 1078 MRT 25 1 0 9.50 1.16 86.87 15440 1078 MRT 26 1 0 9.50 1.16 86.92 16868 1072 MRT 26 2 0 9.50 1.16 86.92 16068 1072 MRT 26 1 0 9.50 1.16 86.92 16068 1072 MRT 26 2 0 9.50 1.16 86.92 16068 1072 MRT 27 2 0 9.50 1.16 86.97 15690 1072 MRT 28 1 0 9.50 1.16 86.97 16690 8585 MRT 28 1 0 9.50 1.16 86.87 16690 8585 MRT 28 1 0 9.50 1.16 86.87 16690 8585 MRT 28 1 0 9.50 1.16 86.87 16690 8585 MRT 28 1 0 9.50 1.16 86.87 16690 8585										1290
PART 22 2 0 9.50 8.54 264.16 18565 2928 PART 28 1 0 9.50 1.16 86.87 14190 1072 PART 28 2 0 9.50 8.91 291.68 14190 8044 PART 24 1 0 9.50 1.18 86.92 14815 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 2 0 9.50 5.51 411.55 15419 -8116 PART 25 4 0 9.50 5.51 411.55 15419 -8116 PART 26 4 0 9.50 1.16 86.87 1540 808 PART 26 1 0 9.50 1.16 86.82 16065 1072 PART 26 2 0 9.50 1.16 86.87 16590 1072 PART 27 2 0 9.50 1.16 86.87 16590 1072 PART 27 2 0 9.50 5.64 890.60 16690 8585 PART 28 1 0 9.50 1.04 77.57 17515 1204			_							964
PART 28 1 0 9.50 1.16 86.87 14190 1072 PART 28 2 0 9.50 8.91 291.68 14190 8044 PART 24 1 0 9.50 1.16 86.92 14815 1079 PART 24 2 0 9.50 1.16 86.87 15440 1078 PART 25 1 0 9.50 1.16 86.87 15440 1078 PART 25 2 0 9.50 5.51 411.55 15449 -8118 PART 26 1 0 9.50 1.16 86.87 16440 8808 PART 26 1 0 9.50 1.16 86.82 18065 1072 PART 26 1 0 9.50 1.16 86.82 18065 1072 PART 27 2 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 5.84 899.60 16690 8545 PART 28 1 0 9.50 1.04 77.57 17515 1204 PART 28 2 0 9.50 6.50 481.99 17524 -8425					-	-				1206
PART 28 2 0 9.50 8.91 291.68 14190 8044 PART 24 1 0 9.50 1.18 86.92 14815 1012 PART 24 2 0 9.50 4.20 815.45 14815 8176 PART 25 1 0 9.50 1.16 86.87 15440 1072 PART 25 2 0 9.50 5.51 111.55 15440 806 PART 26 4 0 9.50 4.67 848.79 15440 806 PART 26 1 0 9.50 1.16 86.92 18065 1072 PART 26 2 0 9.50 1.16 86.92 18065 1072 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 5.64 899.60 16690 8585 PART 28 1 0 9.50 1.04 77.57 17515 1204 PART 28 2 0 9.50 6.50 481.99 17524 -8425										390
PART 24 1 0 3.50 1.18 86.92 14815 1012 PART 24 2 0 9.50 4.20 815.45 14815 8116 PART 25 1 0 9.50 1.16 86.87 15440 1078 PART 25 2 0 9.50 5.51 111.56 16419 -8112 PART 26 4 0 9.50 4.67 848.79 16440 8806 PART 26 1 0 9.50 1.16 86.92 18068 1072 PART 26 1 0 9.50 1.16 86.87 16690 1072 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 6.84 899.60 1690 8585 PART 28 1 0 9.50 1.04 77.57 17515 1204 PART 28 2 0 9.50 6.50 481.99 17524 -8425								_		1267
PART 24 2 0 9.50 4.20 815.45 14815 81% PART 25 1 0 9.50 1.16 86.87 15440 1078 PART 25 2 0 9.50 5.51 411.55 15449 -8112 PART 26 4 0 9.50 4.67 848.79 15440 8808 PART 26 1 0 9.50 1.16 86.82 18068 1072 PART 26 2 0 9.50 1.16 86.87 16690 1072 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 5.84 899.60 1690 8535 PART 28 1 0 9.50 1.04 77.57 17515 1204 PART 28 2 0 9.50 6.50 484.99 17524 -8425				_						990
PART 25 0 9.50 1.16 86.87 15440 1078 PART 25 2 0 9.50 5.51 111.56 15440 1078 PART 25 2 0 9.50 5.51 111.56 15449 -8118 PART 26 4 0 9.50 4.67 848.79 16440 8808 PART 26 0 9.50 1.16 86.82 18085 1072 PART 26 2 0 9.50 4.92 867.10 18085 8699 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 28 1 0 9.50 6.84 898.60 16690 8585 PART 28 1 0 9.50 1.04 77.57 17815 1204 PART 28 2 0 9.50 6.50 484.99 17824 -8426				_						1265
PART 25 2 0 9.50 5.51 411.55 15449 -6112 PART 26 4 0 9.50 4.67 848.79 16440 8808 PART 26 1 0 9.50 1.16 86.82 16065 1072 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 5.84 899.60 16690 8545 PART 28 1 0 9.50 1.04 77.57 17515 1204 PART 28 2 0 9.50 6.50 484.99 17524 -6425										390
PART 26 4 0 9.50 4.67 848.79 18440 8808 PART 26 1 0 9.50 1.16 86.92 18068 1072 PART 26 2 0 9.50 4.92 867.10 18068 8699 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 5.84 899.60 16690 8585 PART 28 1 0 9.50 1.04 77.57 17815 1204 PART 28 2 0 9.50 6.50 484.99 17824 -8426										1242
PART 26 1 0 9.50 1.16 86.92 18068 1072 PART 26 2 0 9.50 4.92 867.10 18068 8699 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 6.84 899.60 16690 8548 PART 28 1 0 9.50 1.04 77.57 17815 1204 PART 28 2 0 9.50 6.50 484.99 17824 -8426			-							1262
PART 26 2 0 3.50 4.92 867.10 1806\$ 8699 PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 6.84 898.60 16690 8585 PART 28 1 0 9.50 1.04 77.57 17315 1204 PART 28 2 0 9.50 6.50 484.99 17824 -8426								_		990
PART 27 1 0 9.50 1.16 86.87 16690 1072 PART 27 2 0 9.50 5.84 898.60 16690 8585 PART 28 1 0 9.50 1.04 77.57 17815 1204 PART 28 2 0 9.50 6.50 484.99 17824 -8426	PART							-		1245
PART 28 1 0 9.50 1.04 77.57 17515 1204 PART 28 2 0 9.50 6.50 484.99 17524 -8425	PART	27	•	0		1.15	86.87	16690	1072	99
PART 28 1 0 9.50 1.04 77.57 17815 1204 PART 28 2 0 9.50 6.50 484.99 17824 ~8425	PART	27	2	0						1242
1100 1100 1102	PART	28	•	0	3.50	1.04	77.57	17515		1044
PART 28 1 0 9.50 5.83 484.76 17815 8699					9.50	6.50	484.99	17524	-8475	1212
	PART	28	4	0	9.50	5.83	484.76	17815	56.99	1246
TOTAL 14160.98 14748 620										1578

Any time, later, that the topology of the part is changed, the user will get a message on the screen that part nos. involved will be deleted.

If, on a finished part, the internal structure is changed, by adding a hole or removing a stiffener trace, the parts involved will be automatically updated without any interference by the user. If the user wants to generate snipes (corner cutouts) at one or more corners of the parts this is done by initially using a SET-command to establish a basic radius.

(SET-CORNER-OUT-RAD 10). Now **10** mm is set as basic radius for corner snipes. When pointing at a corner with the crosshair and using the 2 key on the keyboard when pointing, a corner cutout with radius 20 mm is generated at that corner.

By proceeding in this way parts are generated and stored in assemblies in the database. Weights and center of gravities can be generated for assemblies and printed out in various formats. Also other reports from the database can be generated by report-generator facilities.

The PARTGEN commands include all the AUTOPART commands familiar to the yards using this module presently. This means that all the geometry possibilities in AUTOPART are available in PARTGEN, and so are the macro facilities. This fact will make the transition from AUTOPART to PARTGEN easy and quick for old users.

By using the PARTGEN module for production part generation, the actual part coding, as we know it from ALKON and AUTOPART will in effect disappear, and thus represent a tremendous saving in time required to generate production parts.

A conservative estimate of 30-50% savings in manhours at the loft for part generation ban be expected.

Additional copies of this report can be obtained from the National Shipbuilding Research and Documentation Center:

http://www.nsnet.com/docctr/

Documentation Center
The University of Michigan
Transportation Research Institute
Marine Systems Division
2901 Baxter Road
Ann Arbor, MI 48109-2150

Phone: 734-763-2465 Fax: 734-763-4862

E-mail: Doc.Center@umich.edu